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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,705	05/13/2002	Kari Kalliojarvi	915-414	1802
4955	7590	11/28/2006	EXAMINER	
WARE FRESSOLA VAN DER SLUYS & ADOLPHSON, LLP BRADFORD GREEN, BUILDING 5 755 MAIN STREET, P O BOX 224 MONROE, CT 06468			PEREZ, JULIO R	
			ART UNIT	PAPER NUMBER
			2617	

DATE MAILED: 11/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/019,705

Applicant(s)

KALLIOJARVI, KARI

Examiner

Julio R. Perez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2617.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-8, 10-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wylie et al., US Patent Number 5,974,329, (hereinafter Wylie) in view of Sheynblat et al., US Patent Application Publication 2002/0050944.

Regarding claims 1, 15, 23, Wylie discloses a method (and arrangement and a location server) of determining a distance between a transmitting station and a receiving station comprising the steps of: measuring at least one feature of a signal received from the transmitting station at the receiving station, said feature being such that it can be used for determination of the distance between the transmitting station and the receiving station (col. 4, lines 7-10, 39-65, the signal strength from the mobile station may be measured in relation to its position within the different coverage areas;

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furthermore, the range measurements correspond to power signal measurements); and computing the distance [i.e., range measurement] between the transmitting station and the receiving station using said measured signal feature [i.e., signal strength power] (col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31).

What Wylie does not specifically disclose is that the method is implemented in the system to store and determine a characteristic parameter describing the line-of-sight conditions of the radio propagation environment of the receiving station, wherein the characteristic parameter describes excess path lengths caused by obstacles in the environment by means of one of a number of discrete levels. However, Sheynblat teaches this limitation (Paragraphs 0054, lines 5-16; 0055, lines 1-26).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Wylie to include Sheynblat as it is known to implement measurements systems with coefficient factors (levels).

Regarding claims 2, 16, Wylie in view of Sheynblat as applied above discloses determining the current geographical location of one of the transmitting stations (Wylie, col. 3, lines 5-7).

Regarding claim 3, Wylie in view of Sheynblat as applied above discloses determining at least one further distance between the transmitting station and at least one further receiving station having a characteristic parameter describing the line-of-sight conditions of the radio propagation environment of the at least one further receiving station (Wylie, col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5,

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lines 1-4, 66-67-col. 6, lines 1-10, 26-31, the system provides further information about LOS from other base stations, thus, other characteristic factor, indicating the LOS in the coverage environment); and determining the current geographical location of the transmitting station based on the determined distances between the transmitting station and said at least two receiving stations (Wylie, col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31, thus providing the distance, i.e., the range measurements, between mobile and base stations, and location of the mobile stations).

Regarding claim 4, Wylie in view of Sheynblat as applied above discloses determining at least one further distance between the receiving station and at least one further transmitting station having a characteristic parameter describing the line-of-sight conditions of the radio propagation environment of the at least one further transmitting station (Wylie, col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31, the system provides further information about LOS from other base stations, thus, other characteristic factor, indicating the LOS in the coverage environment); and determining the current geographical location of the receiving station based on the determined distances between the receiving station and said at least two transmitting stations (Wylie, col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31, thus providing the distance, i.e., the range measurements, between mobile and base stations, and location of the mobile stations).

Regarding claim 5, Wylie in view of Sheynblat as applied above discloses at least one feature comprises at least travel time of the signal between the transmitting and receiving stations (Wylie, col. 4, lines 7-10).

Regarding claim 6, Wylie in view of Sheynblat as applied above discloses at least one feature comprises at least signal travel time differences between the transmitting and receiving stations (Wylie, col. 4, lines 7-10).

Regarding claim 7, Wylie in view of Sheynblat as applied above discloses at least one feature comprises at least strength of the received signal (Wylie, col. 4, lines 7-10, 39-65).

Regarding claim 8, Wylie in view of Sheynblat as applied above discloses at least one feature comprises the quality of the received signal (Wylie, col. 4, lines 7-10, 39-65).

Regarding claims 10, 19, Wylie in view of Sheynblat as applied above discloses defining the radio propagation environments for several stations; and classifying the stations in different radio propagation environment classes; wherein the characteristic parameter is based on the class of the station (Sheynblat, Paragraphs 0054, lines 5-16; 0055, lines 1-26).

Regarding claim 11, Wylie in view of Sheynblat as applied above discloses the characteristic parameter is stored and processed in a location service node implemented in a telecommunications system (Paragraphs 0054, lines 5-16; 0055, lines 1-26).

Regarding claims 12, 21, Wylie in view of Sheynblat as applied above discloses the stations are connected to a mobile telecommunications system, the transmitting station being a mobile station and the receiving station being a base station of the mobile telecommunications system or vice versa (Wylie, Figure 1A-1B).

Regarding claim 13, Wylie in view of Sheynblat as applied above discloses the determination of the characteristic parameter comprises steps of: determining the current geographical location of at least one of the stations by means which are external to the telecommunications system; and inputting the results of the determination to the telecommunications system (Wylie, col. 3, lines 5-7).

Regarding claim 14, Wylie in view of Sheynblat as applied above discloses comprising use of a satellite based positioning system for the determination of the current geographical location of at least one of the stations (Wylie, col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31).

Regarding claims 17, 18, Wylie in view of Sheynblat as applied above discloses at least one further receiving station having a substantially fixed location and provided with a characteristic parameter describing the line-of-sight conditions of the radio propagation environment of said at least one further receiving station (col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31, the system provides further information about LOS from other base stations, thus, other characteristic factor, indicating the LOS in the coverage environment); means for measuring a feature of a signal transmitted from the transmitting station to the at least one further receiving station for determination of the distance between the transmitting

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station and the at least one further receiving station (Wylie, col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31, thus providing the distance, i.e., the range measurements, between mobile and base stations, and location of the mobile stations); wherein the arrangement is such that the outcome of the measurement of the feature of the signal transmitted to the at least one further receiving station is also used when determining the location of the transmitting station (Wylie, col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31, thus providing the distance, i.e., the range measurements, between mobile and base stations, and location of the mobile stations).

Regarding claim 20, Wylie in view of Sheynblat as applied above discloses wherein the feature of the signal is based on one or several of the following: travel time of the signal between the transmitting and receiving stations, signal travel time difference between the transmitting and receiving stations, the strength of the received signal, the quality of the received signal (Wylie, col. 4, lines 7-10).

Regarding claim 22, Wylie in view of Sheynblat as applied above discloses the receiving station comprising a sector antenna (Wylie, Figure 1A-1B).

Regarding claim 24, Wylie discloses an arrangement in a telecommunications system for creating and/or updating data concerning the radio propagation environment of a station of the telecommunications system, comprising: a first station (col. 4, lines 7-10, 39-65; Figures 1A-1B); a second station for communicating by radio with the first station (col. 4, lines 7-10, 39-65; Figures 1A-1B); means for defining the current geographical location of the first station by means of a source of location information



that is external to the telecommunications system (col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31; inherently a GPS system provides location information to mobile and base stations as evidenced by the fact that GPS units, (and within base station transceivers), in a mobile system, are located within mobile stations for providing and facilitating their geographical positions as well as transmitting such positions to respective base stations); determining means for determining a feature of a radio signal received by one of the stations from the other of the stations col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31).

What Wylie does not specifically disclose is that the method is implemented in the system to store and determine a characteristic parameter describing the line-of-sight conditions of the radio propagation environment of the receiving station, wherein the characteristic parameter describes excess path lengths caused by obstacles in the environment by means of one of a number of discrete levels. However, Sheynblat teaches this limitation (Paragraphs 0054, lines 5-16; 0055, lines 1-26).

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Wylie to include Sheynblat as it is known to implement measurements systems with coefficient factors (levels).

Regarding claim 25, Wylie in view of Sheynblat as applied above discloses comprising means for receiving signals from a satellite based positioning system (Wylie, col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 39-67; col. 5, lines 1-4, 66-67-col. 6, lines 1-10, 26-31).

Regarding claim 26, Wylie in view of Sheynblat as applied above discloses comprising means for determining if an update of the data concerning the radio propagation environment is required (Sheynblat, Paragraphs 0054, lines 5-16; 0055).

Regarding claim 27, Wylie in view of Sheynblat as applied above discloses wherein the first station comprises a portable device comprising the determining means for determining the feature of the radio signal (Wylie, col. 2, lines 64-67; col. 3, lines 1-16; col. 4, lines 7-10, 39-67).

5. Claim 9, is rejected under 35 U.S.C. 103(a) as being unpatentable over Wylie in view of Sheynblat and further in view of Hilsenrath et al., 6,026,304 (hereinafter Hilsenrath).

Regarding claim 9, Wylie or Sheynblat does not explicitly disclose, comprising use of a weighted least square method for the determination of distances between the receiving and transmitting stations, wherein the used weighting matrix is the inverse of an error covariance matrix.

However, in a similar field of endeavor, Hilsenrath discloses a method and apparatus in a wireless communication system that accurately determines the transmitter's location (col. 6, lines 6-34-col. 7, lines 9-35-col. 8, lines 15-53).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Wylie and Sheynblat with the teachings of Hilsenrath for the purpose of having an entity that would efficiently and accurately locate the mobile station in a coverage area.

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***Response to Arguments***

6. Applicant's arguments with respect to claims 1-27 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio R. Perez whose telephone number is (571) 272-7846. The examiner can normally be reached on 10:30 - 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William H. Trost can be reached on (571) 272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

 1/13/06

Julio R Perez  
Examiner  
Art Unit 2617

  
**WILLIAM TROST**  
**SUPERVISORY PATENT EXAMINER**  
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